

35.C13989 DI

PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Divisional Appln. of:)
Application No.: 09/428,651 :
Filed: October 28, 1999)
: Examiner: Unassigned
TAIZOU HORI, ET AL.)
: Group Art Unit: Unassigned
Application No.: Unassigned)
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Filed: Concurrently Herewith)
:
For: VARIABLE-MODE)
INFORMATION SIGNAL :
REPRODUCTION APPARATUS)
WITH TRACKING CONTROL :
(AS AMENDED)) July 11, 2001

Commissioner For Patents
Washington, D.C. 20231

PRELIMINARY AMENDMENT

Sir:

Prior to examination on the merits, please enter the following amendments
to the above-identified application.

IN THE TITLE:

Please amend the title to read as follows:

--VARIABLE-MODE INFORMATION SIGNAL REPRODUCTION
APPARATUS WITH TRACKING CONTROL--.

IN THE CLAIMS:

Please cancel Claim 1 without prejudice to or disclaimer of the subject matter recited therein.

Please add new Claims 27 to 51 to read as follows.

--27. An apparatus for reproducing information signals recorded in a plurality of recording modes each having different amounts of information signal recorded per unit time, comprising:

reproduction means for reproducing information signals recorded in the plurality of recording modes from a recording medium;

memory means for storing an information signal reproduced by said reproduction means;

mode discrimination means for discriminating a recording mode of the information signal reproduced by said reproduction means; and

control means for changing a period at which the information signal reproduced by said reproduction means is written into said memory means in accordance with a discrimination result of said discrimination means.

28. An apparatus according to claim 27, wherein the plurality of recording modes include a first recording mode for recording information signals with the recording medium being fed at a first speed and a second recording mode for recording information signals with the recording medium being fed at a second speed slower than the

first speed, the second recording mode having an amount of information of the information signal to be recorded per unit time less than that of the first recording mode.

29. An apparatus according to claim 28, wherein the information signal includes an image signal, and wherein the image signal of one frame is recorded in n tracks of the recording medium in the first recording mode, where n is an integer more than two, and is recorded in m tracks in the second recording mode, where m is less than n .

30. An apparatus according to claim 27, wherein said reproduction means includes first and second heads for scanning the recording medium to reproduce information signals recorded in the plurality of recording modes, and wherein said control means changes a period at which an information signal reproduced with the first head is written into said memory means in accordance with the recording mode discriminated by said mode discrimination means.

31. An apparatus according to claim 30, wherein the plurality of recording modes includes a first recording mode and a second recording mode, and wherein said control means controls a writing operation of said memory means so that, when the discrimination result of said mode discrimination means indicates the first recording mode, an information signal reproduced by said reproduction means is written into said memory means every time the first head scans the recording medium, and when the discrimination result of said discrimination means indicates the second recording

mode, the information signal reproduced by said reproduction means is written into said memory means at every n scanings of the first head, where n is a natural number.

32. An apparatus according to claim 31, wherein said control means controls the writing operation of said memory means so that information signals reproduced with said second head are written into said memory means at every scanning of the recording medium irrespective of a discrimination result which indicates one of the first and second recording modes.

33. An apparatus according to claim 27, wherein the information signal is a compressed image signal, which is recorded in a plurality of tracks of the recording medium, and wherein said control means writes an image signal reproduced by said reproduction means into said memory means on a track basis.

34. An apparatus according to claim 27, further comprising reproduction processing means for expanding an information amount of the information signal stored in said memory means, wherein said control means controls an expanding processing of said reproduction processing means in accordance with the discrimination result of said mode discrimination means.

35. An apparatus according to claim 27, further comprising error correction means for accessing said memory means and correcting an error of the information signal stored in said memory means.

36. An apparatus for reproducing from a recording medium image signals which are recorded on the recording medium in a first recording mode for recording a signal with the recording medium being fed at a first speed and a second recording mode for recording a signal with the recording medium being fed at a second speed different from the first speed, comprising:

reproduction means for scanning the recording medium with first and second heads, thereby reproducing an image signal recorded on the recording medium;

writing means for writing the image signal reproduced by said reproduction means into a memory;

reproduction mode selection means for discriminating a recording mode of the image signal reproduced by said reproduction means, thereby selecting a first reproduction mode for reproducing the image signal recorded in the first recording mode, with the first and second heads with the recording medium being fed at the first speed, and a second reproduction mode for reproducing the image signal recorded in the second recording mode, with the first and second heads with the recording medium being fed at the second speed; and

control means for controlling said writing means so as to change a period at which the image signal reproduced with the first head is written into said memory in

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accordance with the reproduction mode selected by said reproduction mode selection means.

37. An apparatus according to claim 36, wherein the second speed is slower than the first speed, and wherein an amount of information of the image signal to be recorded per unit time in the second recording mode is less than in the first recording mode.

38. An apparatus according to claim 37, wherein the image signal of one frame is recorded in n tracks in the first recording mode, where n is an integer more than 2, and is recorded in m tracks in the second recording mode, where m is less than n .

39. An apparatus according to claim 36, wherein an amount of information of the image signal is compressed, and wherein said writing means writes the image signal as compressed into said memory.

40. An apparatus according to claim 36, further comprising expansion means for expanding an amount of information of the image signal stored in said memory by said writing means, wherein said control means controls an expanding processing of said expansion means in accordance with the reproduction mode selected by said reproduction mode selection means.

41. An apparatus according to claim 36, wherein the recording medium includes a tape-shaped recording medium, and wherein the image signal is recorded in a plurality of tracks formed on the tape-shaped recording medium.

42. An apparatus according to claim 36, wherein said control means controls said writing means so as to store the image signal reproduced by said reproduction means into said memory at every scanning of the first head in the first reproduction mode and to write the image signal reproduced by said reproduction means into said memory at every n scannings of the first head in the second reproduction mode, where n is a natural number.

43. An apparatus according to claim 42, wherein said control means controls said writing means so as to write the image signal reproduced with the second head into said memory at every scanning irrespective of a discrimination result of said reproduction mode selection means.

44. An apparatus according to claim 36, further comprising error correction means for accessing said memory and correcting an error of the image signal stored in said memory.

45. An apparatus for reproducing information signals recorded in a plurality of recording modes each having different amounts of information of an information signal to be recorded per unit time, comprising:

reproduction means for reproducing information signals recorded in the plurality of recording modes from a recording medium;

memory means for storing information signals reproduced by said reproduction means;

mode discrimination means for discriminating the recording mode of an information signal reproduced by said reproduction means;

tracking means for controlling tracking between the recording medium and said reproduction means; and

control means for controlling a timing at which the information signal reproduced by said reproduction means is written into said memory means, and controlling a tracking operation of said tracking means in different manners, in accordance with a discrimination result of said mode discrimination means.

46. An apparatus according to claim 45, wherein said tracking means includes tracking error signal generation means for generating and outputting a tracking error signal using the information signal reproduced by said reproduction means, and wherein said control means controls a generation timing of the tracking error signal in accordance with the discrimination result of said mode discrimination means.

47. An apparatus for reproducing from a recording medium image signals recorded in a first recording mode for recording a signal with the recording medium being fed at a first speed and a second recording mode for recording a signal with the recording medium being fed at a second speed different from the first speed, comprising:

reproduction means for scanning the recording medium with first and second heads, thereby reproducing image signals from the recording medium;

memory means for storing an image signal reproduced by said reproduction means;

tracking means for controlling tracking between the recording medium and said reproduction means using an output signal of said reproduction means;

reproduction mode selection means for discriminating the recording mode of an image signal reproduced by said reproduction means, thereby selecting a first reproduction mode for reproducing an image signal recorded in the first recording mode, with the first and second heads with the recording medium being fed at the first speed, and a second reproduction mode for reproducing an image signal recorded in the second recording mode, with the first and second heads with the recording medium being fed at the second speed; and

control means for controlling said memory means so as to change a writing timing at which an image signal reproduced with the first head is written into said memory, and a tracking operation of said tracking means, in accordance with the reproduction mode selected by said reproduction mode selection means.

48. A method of reproducing information signals recorded in a plurality of recording modes each having different amounts of information of an information signal to be recorded per unit time, comprising:

a reproduction step of reproducing information signals recorded in the plurality of recording modes from a recording medium;

a storing step of storing in a memory information signals reproduced in said reproduction step;

a mode discrimination step of discriminating a recording mode of an information signal reproduced in said reproduction step; and

a control step of changing a period at which information signals reproduced in said reproduction step are written into said memory in accordance with a discrimination result of said discrimination step.

49. A method of reproducing from a recording medium image signals which are recorded on the recording medium in a first recording mode for recording a signal with the recording medium being fed at a first speed and a second recording mode for recording a signal with the recording medium being fed at a second speed different from the first speed, comprising:

a reproduction step of scanning the recording medium with first and second heads, thereby reproducing an image signal recorded on the recording medium;

a writing step of writing an image signal reproduced in said reproduction step into a memory;

a reproduction mode selection step of discriminating a recording mode of an image signal reproduced in said reproduction step, thereby selecting a first reproduction mode for reproducing an image signal recorded in the first recording mode, with the first and second heads with the recording medium being fed at the first speed, and a second reproduction mode for reproducing an image signal recorded in the second recording mode, with the first and second heads with the recording medium being fed at the second speed; and

a control step of controlling said writing means so as to change a period at which an image signal reproduced with the first head is written into said memory in accordance with the reproduction mode selected in said reproduction mode selection step.

50. A method for reproducing information signals recorded in a plurality of recording modes each having different amounts of an information of information signal to be recorded per unit time, comprising:

a reproduction step of reproducing information signals recorded in the plurality of recording modes from a recording medium reproduction means;

a storing step of storing in a memory information signals reproduced in said reproduction step;

a mode discrimination step of discriminating the recording mode of an information signal reproduced in said reproduction step;

a tracking step of controlling tracking between the recording medium and said reproduction means; and

a control step of controlling a timing at which an information signal reproduced in said reproduction step is written into said memory, and controlling a tracking operation in said tracking step in different manners, in accordance with a discrimination result in said mode discrimination step.

51. A method of reproducing from a recording medium image signals recorded in a first recording mode for recording a signal with the recording medium being fed at a first speed and a second recording mode for recording a signal with the recording medium being fed at a second speed different from the first speed, comprising:

a reproduction step of scanning the recording medium with first and second heads of reproduction means, thereby reproducing an image signal from the recording medium;

a storing step of storing in a memory an image signal reproduced in said reproduction step;

a tracking step of controlling tracking between the recording medium and said reproduction means using an output signal of said reproduction step;

a reproduction mode selection step of discriminating the recording mode of an image signal reproduced by the reproduction means, thereby selecting a first reproduction mode for reproducing an image signal recorded in the first recording mode, with the first and second heads with the recording medium being fed at the first speed, and a second reproduction mode for reproducing an image signal recorded in the second

recording mode, with the first and second heads with the recording medium being fed at the second speed; and

a control step of controlling said storing step so as to change a writing timing at which an image signal reproduced with the first head is written into said memory, and a tracking operation of said tracking step, in accordance with the reproduction mode selected in said reproduction mode selection step.

REMARKS

The present application is divisional application under 37 CFR 1.53(b) of application no. 09/428,651 filed October 28, 1999.

The claims now pending in the application are Claims 27 to 51, the independent claims being Claims 27, 36, 45, 47 and 49 to 51. Claim 1 has been cancelled herein. Claims 27 to 51 are newly presented.

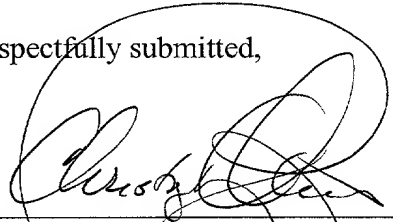
By separate paper filed concurrently herewith, Applicants have submitted an Information Disclosure Statement identifying art of record in the above-referenced parent applications.

Also, by separate paper filed concurrently herewith, Applicants also have submitted a Request For Approval To Amend The Drawings, including a proposed amendment previously filed and approved in parent Application No. 09/428,651. No new matter has been added.

Consideration of the newly presented claims and passage to issue of the present application at the Examiner's earliest convenience respectfully are solicited.

Applicants' undersigned attorney may be reached in our Washington, D.C. office by telephone at (202) 530-1010. All correspondence should continue to be directed to our below listed address.

Respectfully submitted,



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FIG. 6

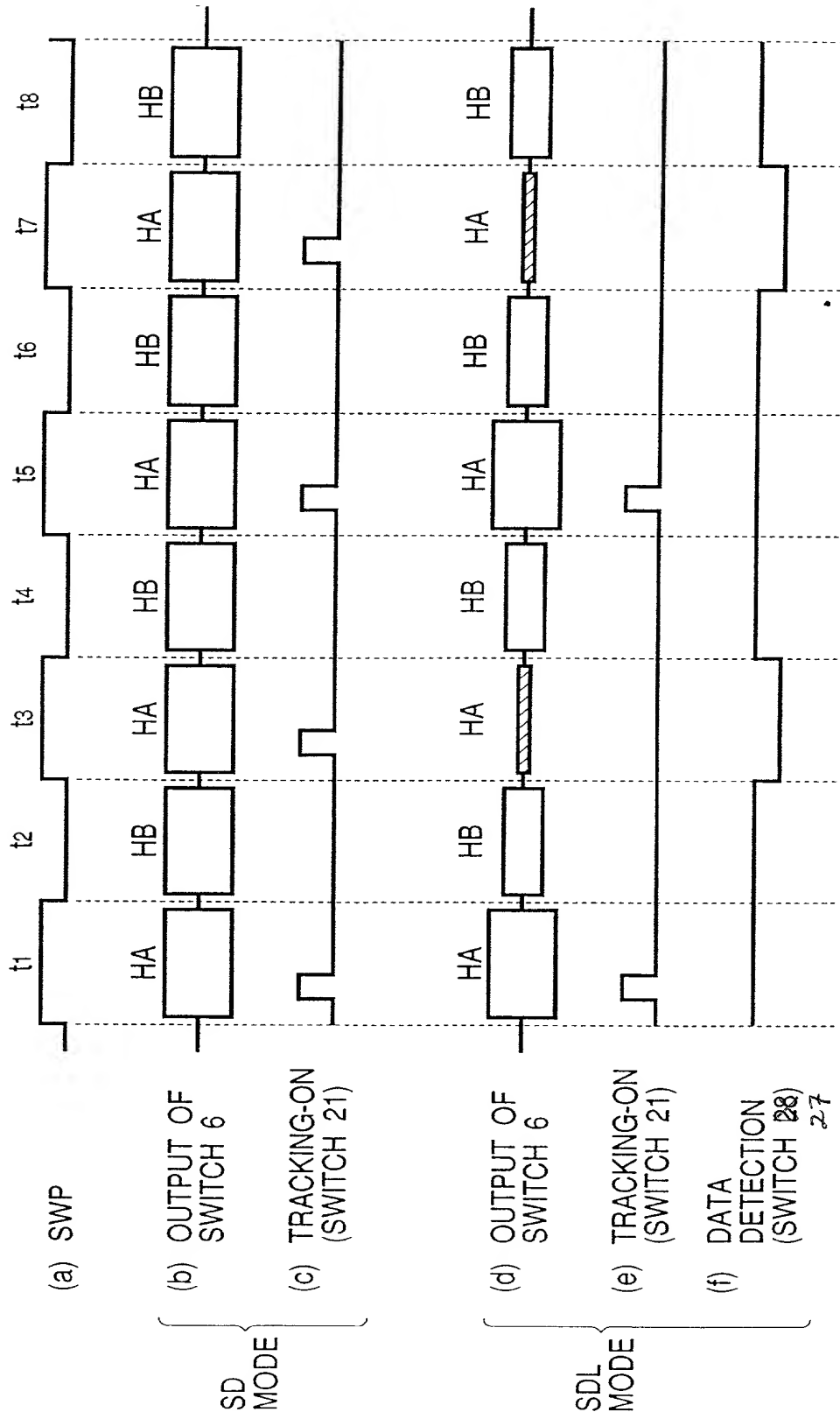


FIG. 6

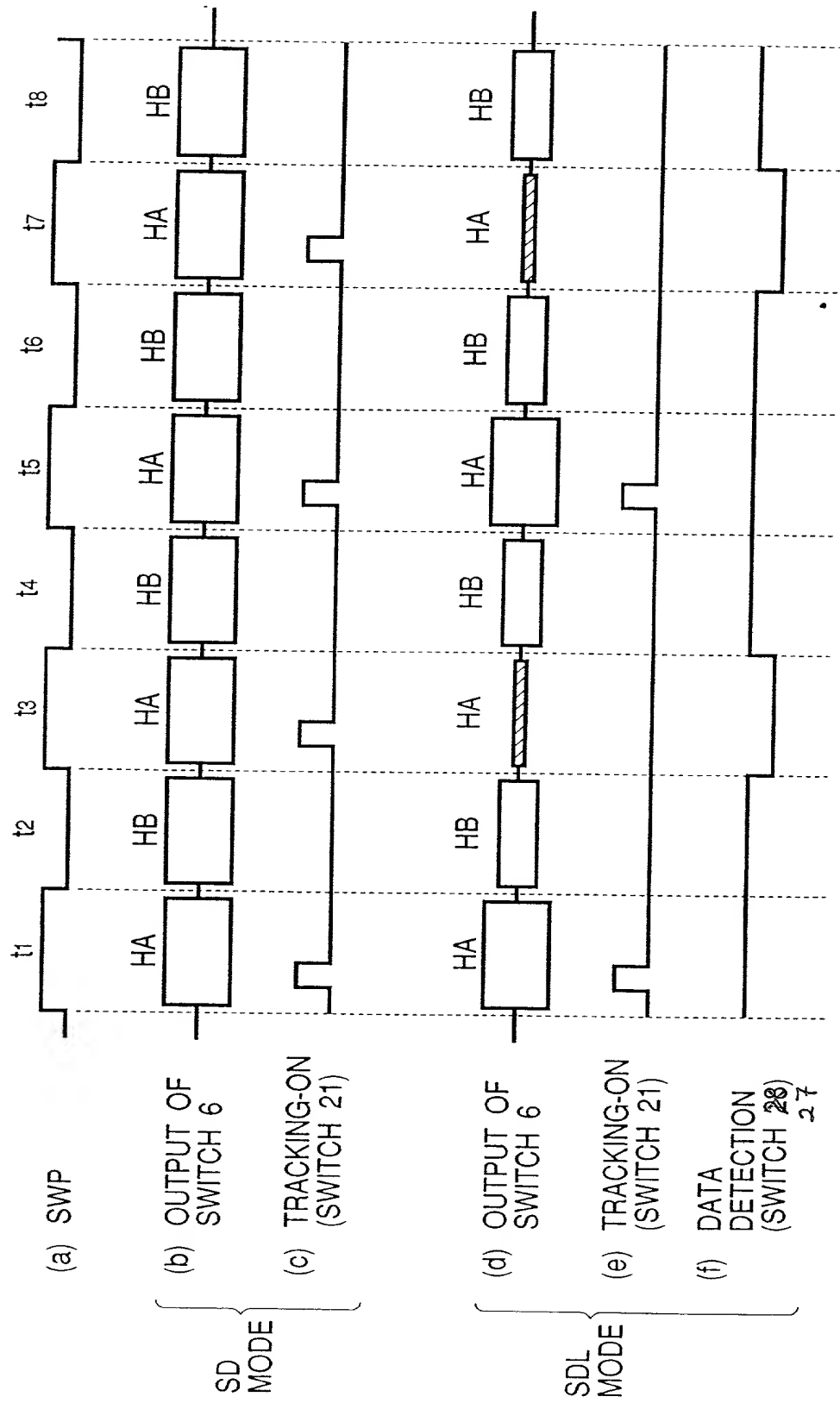


FIG. 6

